Pakistan Economic Review
1:2 (Winter 2018), pp.83 - 104

IMPACT OF TRADE LIBERALIZATION ON EMPLOYMENT, POVERTY REDUCTION, AND ECONOMIC DEVELOPMENT

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ABSTRACT

The study investigates the impact of trade liberalization on employment, its consequence to poverty reduction and how trade openness affects economic development in Pakistan. Although, increase in poverty and unemployment is observed, this study ascertains a growth in macroeconomics indicators. The Annual data of macroeconomic indicators including per capita income for industrial and agriculture sector, employed labor force, inflation and per capita GDP are used to investigate the impact of trade liberalization. Johansen Co-integration and Error Correction Method (ECM) are applied to estimate short and long run relationship among variables. Granger causality test is performed to determine causal relation between trade openness and other variables. The finding of this study reveals that in short run, there is negative relationship between trade openness and per capita income in industrial sector, employed labor force and inflation while positive association with per capita income in agricultural sector. In the long run, trade liberalization has a positive association with per capita income in agricultural and industrial sector, employed labor force and inflation and inverse relation with per capita GDP.

JEL Classifications: F02, F13, F15, F43, C13, C32

Keywords: Trade liberalization, Economic Development, CPI, Poverty

1. INTRODUCTION

The concept of trade liberalization or trade openness has been considering a vital part of any development policy since 1970s and it attained great attention after establishment of World Trade Organization (WTO) in 1995, which further enhance the process of trade openness. It is a forum where different countries of the world discuss and negotiate trade related dispute. The basic purpose of the WTO is to implement the rules of international trade, to enhance the transparency of decision-making processes, to cooperate with other major international economic institutions involved in global economic management and to enhance capacity building of trade (to help developing countries in developing the skills and infrastructure needed to expand their trade).

Trade is considered to be the very influential element on macroeconomic policies and has added much more to the economic development. The free trade brings about the worldwide welfare gain (Balogun and Dauda, 2012). Every country wants to

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enhance the productivity through the exchange of goods, services, skills, knowledge and expertise. Through trade countries are able to enhance the availability of choice, improve the income level, raises the prospects for enrichment of technical change. The desired process of change indicates the development. Consequently, development improved the work capacity of the nation, increased empowerment of nation and result in high rates of participation in productive activities. Thus, trade and development run parallel (Yasmin *et.al.*2006). Concerning a labor surplus economy, it is anticipated that trade liberalization would encourage the export of labor intensive products resulting in an increased employment rate and poverty alleviation (Balogun and Dauda, 2012). Furthermore, trade openness has a positive effect on development and poverty reduction particularly among less developed countries. The Doha Development Agenda conducted by the World Trade Organization (WTO) stressed upon the world community that poverty alleviation followed the trade liberalization principal as the main goal of MDGs called for current global trade negotiation (Bouet, 2006).

Many market-oriented strategies have been adopted during the last three decades like the liberalization of the capital account, foreign exchange, credit, domestic consumption and trade in different countries (Yasmin *et.al.* 2006). The trade liberalization receives exceptional attention in different economies. Trade liberalization means the reduction in barriers to the movement of goods and services in international market. This includes the removal or reduction of both tariff (duties and surcharges) and non-tariff obstacles (like licensing rules, quotas and other requirements). In the words of Bhagwati and Krueger, "any policy which reduces the anti-export bias will lead towards liberalization of trade" (Edwards, 1993) and reduction in the import license premium is the fundamental step towards a liberalized trade regime.

Although, the new growth theory explains that the market may be expanded by an increase in R&D, reallocation of resource/employment, and increasing knowledge /technological flow among the countries through trade liberalization but it is reverse for developing countries as the major problem of adopting trade liberalization policies is the10-20% loss in government revenue due to loss in tariff revenue. These countries have to impose huge increase in taxes to maintain their budget in line that lead to the economic distortion (Yasmin *et.al.* 2006).

This may also bring about to unequal distribution of gain and pain, where gain are distributed across the economy, while the burden/ pain of adjustment are borne mainly by particular group as mentioned in Human Development Report (2003). It has been observed that trade liberalization policy, supported by exchange rate reform, which bring about expansion in exports of many countries especially the Asian Tigers have had dreadful penalty on employment and poverty in most LDCs. Many policy experts /economists say that this inauspicious development is not caused by trade liberalization, it may be due to adoption of import substitution policies on wide scale that compromised the gain from trade. Even now trade liberalization is considered to hold the keys to the rapid economic development and

to triumph over the greatest confront the region faces in the existing global economy (Balogun and Dauda, 2012).

1.1 Objectives of Study

In order to capture the effect of trade liberation on major macroeconomic variables, following are the main objectives of study:

1. To find out the impact of trade liberalization on employment and its consequence to poverty reduction.

2. How openness of trade affects economic development, whether the impact is blessing or curse?

The organization of the study is as follows. The study consists of seven sections. Section 1 consist of introduction and some basic information about study. Literature review is discussed in section 2. In section 3 data source and methodology are discussed. The empirical estimation is performed in section 4. The discussion on results is described in details in section 5. Conclusions and policy recommendations for developing countries are presented in section 6.

1.2 Trends of Economic Indicators for Liberalization

In order to see the trends of some macroeconomic indicators overtime, it is important to note that during 1987 to 2009, trade liberalization, employment and poverty have had certain changes (Table 1). If a country sets a policy of high trade tariff it restricts the international trade attractiveness, thus obstruct export and imports. The data shows that there is no change in trade liberalization policy of Pakistan. Pakistan seems to be in the same situation as 1990 to 2008 however a slight change can be seen from 2010-11 to 2014-15 in trade openness.

Table: 1 Trend of Economic Indicators (1987-2009)

Fiscal Year	Trade Liberalization	Poverty**	Employed Labor Force	Gini Coefficient	Consumer Price Index
1987-88	0.35	62.16	28.99	33.32	13.94
1990-91	0.31	58.96	29.52	33.25	17.85
1996-97	0.35	15.92	33.13	28.67	33.48
1998-99	0.31	23.44	36.94	33.12	39.61
2001-02	0.30	28.49	38.14	30.5	44.41
2004-05	0.30	18.05	42.24	32.33	50.72
2005-06	0.35	16.49	43.22	32.69	55.32
2007-08	0.36	13.25	48.07	31.42	64.24
2010-11	0.33	8.30	53.82	29.59	100.00
2011-12	0.33	6.70*	55.8	29.24*	111.92
2012-13	0.29	5.05*	56.01	28.54*	122.76
2013-14	0.30	3.41*	56.52	27.99*	132.20
2014-15	0.28	1.78*	-	27.47*	141.70

***Poverty headcount ratio at $1.90 a day (PPP) (% of population), * Forecasted values*
Source: *Different issues of Pakistan Economic Survey and World Development Indicators*

The table shows that 62.16 million people were living on $1.90/day or less in 1987-88 while 3.41million people were living on $1.90/day or less in 2014-15. This clearly indicates that there is massive reduction in poverty in Pakistan form the last two decades.

Pakistan is the 10th largest country in the world according to the size of the labor force [Government of Pakistan (2013)]. Employment statistics of the country is an important indicator for policy and planning purposes. The statistics shows that the total labor force has increased from 28.99million in 1987-88 to 56.52 million in 2013-14. It shows that more than 27.53 million people joined the labor force during this period. A GINI index of 0 represents perfect equality, while an index of 100 implies perfect inequality. The data shows that there is only 5.87-degree decrease in inequality of income in Pakistan from 1987 to 2014. A comprehensive measure used for measuring price changes in a basket of goods and services that is representative of consumption expenditure in an economy is called consumer price index. It is also considering the good yard stick for inflation. The data show that 127.76 % increase in inflation from 1987 to 2014. The inflation has increase from 13.94 in 1987-88 to 141.70 in 2014-15.

Therefore, the study attempts to explore the interrelationship between poverty, employment and trade liberalization in Pakistan. Annual data for the period ranging from 1971 to 2015 of macroeconomic indicators including per capita income for industrial and agriculture sector, employed labor force, GDP per capita have been employed to investigate the impact of trade liberalization. A two-way strategy comprising descriptive and econometric analysis has been adopted to investigate the relationship between variables.

2. LITERATURE REVIEW

An enormous amount of literature provides sufficient support of major contribution either positive or negative of trade liberalization to the development of the world. Some of the significant studies discusses as under in chronological order:

A Computable General Equilibrium (CGE) model was used by Yang and Huang (1997). They suggested that a decline in the economy wide tariff move to towards more equitable distribution of income in China. Milner and Wright (1998) revealed that reduction in protection for local firms is due to trade liberalization that enhanced the employment opportunities in export industries in Mauritius. Empirical study for the indirect linkages between trade liberalization and growth was done by Waczairg (2001). He investigated the impact of trade liberalization on six different channels of growth for 57 countries during the time period 1970-1989. He estimated the parameters jointly through three stage least squares by using the simultaneous equations technique. The results indicated that trade liberalization has a positive impact on growth through five determinants, namely the black market premium, manufactured exports, investment rate, foreign direct investment, macro policy quality, while growth was negatively impacted by trade liberalization through government size (measured by government consumption). He also observed that

Investment appears to be the most significant channel through which trade liberalization affects growth. Mohsin *et. al*. (2001) attempted to investigate the impact of trade liberalization on the poverty level in Pakistan for the time period 1963-64 to 1993-94. They used head count index method for measuring poverty and the sum of imports and exports as a percentage of GDP for openness. The study reveals that poverty has reduced with trade openness in Pakistan.

Irwin *et. al*. (2002) explored the relationship between trade liberalization and income growth for different countries and verified that more open economies that engaged in bilateral trade for different time periods enjoy a higher level of per capita income. The instrumental variable (IV) technique was used for estimation. Greenaway *et.al*. (2002) carried out a study to analyze the relationship between trade liberalization and the growth rate of GDP for 73 developing countries. Heused OLS technique with three different time periods for three different indicators. They found that in the long run, the growth rate of GDP with a lag is affected by all indicators. To find out the macroeconomic determinants of growth in Pakistan, Kemal *et. al* (2002) used the variables such as investment in physical capital, population growth, government consumption, inflation and trade liberalization, which are considered to have considerable effect on the economic growth rate. They used time series data for the period 1959-60 to 2000-01 and applied OLS technique for estimation. They demonstrated that trade liberalization has insignificant impact on economic growth. It is owing to non-availability of data of many other important indicators, and many other political, institutional and infrastructure problems faced by Pakistan.

Winter, McCulloch and McKay (2004) inspected the relationship between trade liberalization and poverty. They determined that although trade openness has static and micro-economic effects on poverty alleviation in the long run but it is not necessary, that benefits of trade liberalization would be beneficial for the poor. It is due to the adjustments under trade reform may place the poor at a disadvantaged position to protect themselves against adverse effects and take advantage of favorable opportunities.

Bouet (2006) observes that the conventional argument in favor of a positive relationship between trade liberalization and poverty reduction focuses on the first two linkage: price and availability of goods and factor prices. He uses the computable general equilibrium (CGE) model which is complicated and composite tool of an analysis, considered as "Black Box", difficult to interpret it. He found that trade liberalization brings about higher world agriculture prices and increases activity and compensation in agriculture sector in developing countries. The same result could happen in the textile and clothing sector. He revealed that literature also supported that trade liberalization may also have negative impact. He argued that i) government revenue is collected through trade related taxes tariff, excise duties may reduce through trade liberalization, ii) term of trade may be declined as openness of trade impacts the world price, iii) due to openness of trade, short-run risk may rise due to competition from imports, reallocation of productive factors and by imposing adjustment cost.

2.1 Some Important Studies Carried Out in Pakistan

Yasmin *et.al.* (2006) found that trade liberalization affects the employment positively and per capita GDP negatively, perhaps it is due to imported products are cheaper than local products. They also proved that trade openness has no impact on poverty, however, it has contributed to the accentuation of income inequality in the country. Akmal *et al.* (2007) investigated that trade liberalization decreases the poverty in short run. He further argued that GDP per capita and trade openness has no significant relationship between poverty. Mahmood *et.al.* (2010) concluded that increase in international price of rice would result in a gain to Pakistan but the situation is opposite to it in case of maize and wheat. They also claimed that sharp increase in openness bring about worsening balance of payments and continued high level of poverty and unemployment.

Malik *et.al.* (2011) explored that FDI, worker's remittances and economic dimensions of globalization create employment opportunities not only in short run but also in long run in Pakistan while the employment is negatively affected by trade openness and social and political dimensions for globalization due to some external and internal imbalance in the country. Hafeez and Haseeb (2016) elaborated that investment and trade openness had significantly positive impact on the economy with less frequent structural shocks and political regime changing. Ramzan and Kiani (2012) estimated empirically joint impact of FDI and trade liberalization on growth of real output in Pakistan. They used the annual data for period ranging from 1975 to 2011 and explored that FDI and trade openness cast positive effect on real output growth of Pakistan. Shaheen *et.al.* (2013) analyzed the impact of trade liberalization on the economic growth of Pakistan over the period 1975-2010. The result indicated that trade liberalization and gross fixed capital formation have a positive significant impact on economic growth while foreign direct investment and inflation have a negative impact. Hafeez *et.al.* (2015) the exchange rate has double edged effect on growth and helps revising trade policy.

Chaudhry and Imran (2013) investigated that trade liberalization decreases the poverty but have not significant impact on overall poverty and income inequality in short-run in Pakistan, while in the long run, trade liberalization has strapping effect on poverty and inequality. They concluded that affect of trade liberalization was not clear on the lives of poor and inequality in developing countries. Iqbal *et.al.* (2014) examined that impact of trade on employment and unskilled workers in large scale manufacturing industries of Pakistan. They concluded the negative impact of trade liberalization on employment of both production and non-production workers. The negative impact of trade liberalization may be due to low mobility of labor (as result of rigid labor market) as well as to the high protection dedicated to the most inefficient industries. Khan *et.al.* (2015) argued that agricultural trade liberalization leads to raise entire income inequality in Pakistan. They showed that distributional impact of agricultural trade linearization is somewhat harmful to the rural household's types, who derive majority of their income from agricultural sources. They concluded that trade liberalization should not be considered as policy measure to decrease the poverty, however, it should be formulated in such way that sustained

growth can be obtained through negligible adjustment costs. Hence, poverty reduction strategies should be separate focus, so that both impacts from trade linearization as well as the reduction of poverty and income inequality can be maximized. China Pakistan Economic Corridor (CPEC) ensured a new dimension to local trade that predicts transportation infrastructure, industrial production units, decreased transportation costs, reduction in inventory cost and improved delivery time (Ullah *et.al.*, 2018).

To sum up, there is a diverging opinion in terms of impact of trade liberalization on macroeconomic variables. Some of the studies support the arguments that trade openness has positive association with poverty reduction via improved productivity labor intensive small and medium enterprise while some studies testifies that trade liberalization does not affect all indicator of development. Furthermore, our literature review reveals a research gap concerning the nexus of poverty and employment situation and trade liberalization in Pakistan. To fill this gap, we need to investigate the impact of trade liberalization on poverty and economic development in detail. The novelty of the study is that data of per capita income in agriculture and industrial sector used to check the impact of trade liberalization on these variables. The study applies econometric technique like cointegration and ECM to investigate the impact of trade openness on per capita income in agriculture and industrial sector, employment, inflation in the long run as well as short run.

3. DATA AND METHODOLOGY

3.1 Description of Variables and Their Justification

The focus of the study lies in whether trade liberalization has significant influence on poverty, employment and economic development in Pakistan? For this purpose, GDP per capita, employed labor force, per capita income in the industrial and agricultural sector (proxy for poverty), foreign reserves, total investment (public + private investment), exchange rate, broad money supply (M2), interest rate, trade liberalization, and terms of trade have been used.

The level of poverty which is used as one of the measures of economic development, it may be reduced by increase in per capita GDP and employment. Per capita income in the industrial and agricultural sector is used as a proxy for poverty. Therefore, Per capita income in the industrial and agricultural sector is used as dependent variables to verify the effect of trade liberalization and other relevant variables. Poverty is supposed to be negatively related to per capita GDP and employment. It is anticipated that trade liberalization reduces the poverty as result of increasing imports of goods and services in the economy. An increase in goods and services by imports is considered to bring about decrease in inflation (price) and consequently raise the standard of living of the people of a country.

To measure the employment level, labor force employment data is used as independent variable to check and verify the effect of trade liberalization. Employment level is assumed to be affected positively by trade openness, as it

increases the access to cheap goods, raw material and machinery which enhance the development of the country. To determine the degree of development of country, generally high per capita GDP is considered as indicator of better development of the country. Employment, human capital, inflation and trade liberalization are expected to affect the per capita GDP positively. Inflation is also expected one of major indicator of the development of economy. It is expected to be affected by trade liberalization, employment level, per capita GDP, and other related variable linked with trade liberalization.

Table 2: Variables Description

	Variables	Brief Description
	$PCYAS = \frac{Y_{agr}}{LF_{agr}}$	Per capita income of agricultural sector derived as ratio of agricultural GDP (Y_{agri}) to total labor force employed by the agricultural sector.
Dependent variables	$PCYIS = \frac{Y_{ind}}{LF_{ind}}$	Per capita income of industrial sector derived as ratio of manufacturing GDP (Y_{ind}) to total labor force employed by the industrial sector.
	ELF	Employed labor force is that portion of total labor force which is employed in paid jobs and self employed.
	$PGDP$	Per capita gross domestic product is all the services and goods produce in Pakistan
	$TOT = \frac{P_x}{P_m}$	Term of trade is the ratio of export price index to import price index.
Exogenous variables	$TL = \frac{XT + MT}{GDP}$	Trade openness defined as ratio of total trade (XT+MT) to GDP at current market price(Y)
	ER	Exchange rate (Rs/$)
	FR	Foreign reserve depicting international financial capability to participate in international trade
	$M2$	Broad Money supply to show monetary policy stance.
	CPI	Consumer price index represents inflation that is annual rate of increase in price
	HK	School enrolment at primary level is used as proxy for Human capital
	$TI = PB_{inv} + PR_{inv}$	Total investment is derived by accumulation of public and private investment
	TG	Type of government is taken as dummy variables with D=1 for political government and 0, otherwise.

3.2 Model Specification

It is anticipated that poverty and economic development is affected by the trade liberalization and its related channels as describe above. Trade liberalization also impacts on per capita GDP, inflation and employment level. Furthermore, these indicators are supposed to affect and to be affected by each other. For example, employment level and per capita GDP are mutually dependent on each other. Similarly, per capita GDP and inflation, exchange rates are interdependent (Yasmin *et.al.*, 2006). The problem of simultaneity across equations creates interdependence among the endogenous variables. We need to estimates a system of equations, not a single equation, in order to be able to capture this interdependency among variables. As such, simultaneity among the chosen variables requires preparation of the model

and its estimation in a way that the analysis capitulate suitable results. A simultaneous equation model takes place when one or more of the explanatory variables are jointly determined with the dependent variable, typically through an equilibrium mechanism. To this end, we have specified a simultaneous equations model[2], as shown below, and estimated by using the econometric technique. Macroeconomic indicators that are considered to be influenced by trade liberalization like, poverty (per capita income in industrial and agriculture sector, employment, economic development), and trade have been used as regressors in model. Trade liberalization as well as other variables mentioned above that may affect the regressors are also include in equation. Model specification is given below:

$$LPCYAS = \alpha + \beta_1 LPCYIS_t + \beta_2 LTOT_t + \beta_3 LTL_t + \beta_4 LER_t + \beta_5 LM2_t + \beta_6 LFR_t + \beta_7 LELF_t + \beta_8 LCPI_t + \beta_9 LHK_t + \beta_{10} LTI_t + \varepsilon_t \quad (1)$$

$$LPCYIS = \alpha + \beta_1 LPCYAS_t + \beta_2 LTOT_t + \beta_3 LTL_t + \beta_4 LER_t + \beta_5 LM2_t + \beta_6 LFR_t + \beta_7 LELF_t + \beta_8 LCPI_t + \beta_9 LHK_t + \beta_{10} LTI_t + \varepsilon_t \quad (2)$$

$$LELF_t = \alpha + \beta_1 LPCYIS_t + \beta_2 LPCYAS + \beta_3 LTOT_t + \beta_4 LTL_t + \beta_5 LER_t + \beta_6 LM2_t + \beta_7 LFR_t + \beta_8 LCPI_t + \beta_9 LHK_t + \beta_{10} LTI_t + \varepsilon_t \quad (3)$$

$$LCPI_t = \alpha + \beta_1 LPCYIS_t + \beta_2 LPCYAS + \beta_3 LTOT_t + \beta_4 LTL_t + \beta_5 LER_t + \beta_6 LM2_t + \beta_7 LFR_t + \beta_8 ELF_t + \beta_9 LCPI_t + \beta_{10} LHK_t + \beta_{11} LTI_t + \varepsilon_t \quad (4)$$

$$LPGDP_t = \alpha + \beta_1 LTOT_t + \beta_2 LTL_t + \beta_3 LER_t + \beta_4 LM2_t + \beta_5 LFR_t + \beta_6 ELF_t + \beta_7 LCPI_t + \beta_8 LHK_t + \beta_9 LTI_t + \varepsilon_t \quad (5)$$

It is evident from above specified model that we have used five dependent variables that are endogenous: Per capita income of agricultural and industrial sector (proxy used as poverty), employed labor force (proxy as employment), and Per capita gross domestic product (proxy as economic development). Exogenous variables include trade liberalization, exchange rate, interest rate, money supply, foreign reserve, inflation (CPI), and human capital. A description of all variables can be found in the Table 2.

3.3 Data and Sources

Time series data from 1971 to 2015 of all variables have been collected from Economic Survey (various issues), while data of foreign reserve, exchange rate, broad money supply have been retrieved from World Bank Database.

3.4 Estimation Method

E-Views 6 has been preferred to estimate the above mentioned models. To verify the long run as well as short run relationship between variables the Johansen

[2] The main features of a simultaneous equation model are: two or more dependent (endogenous) variables, A set of equations and Computationally cumbersome, highly non-linearity in parameters and errors in one equation transmitted through the whole system.

Cointegration, Error correction model have been applied. To analyze the impact of variables on each other, the granger casualty test has been performed.

4. EMPRICAL ESTIMATION

4.1 Descriptive Statistics

A comprehensive descriptive analysis has been estimated and presented in Table 3. The data set comprise of 45 observations from 1971-2015 of selected variables. The table shows that the average per capita GDP in industrial sector and per capita GDP in agricultural sector for our study period are 61619.14 and 31781.75 million rupees with standard deviation of 66898.39 and 1175.72 respectively. The average of trade openness is 0.32, while 0.05 is the deviation. Employed labor force and consumer price index is 35.22 and 70.82 on average along with deviation 12.86 and 69.40 respectively. Data symmetry is measured by Skewness. As far as skewness (lack of symmetry) of the variables in concerned all the variables are right skewed and trade openness, terms of trade, human capital are left skewed. Most of variables are little skewed to left or right.

Table 3: Descriptive Statistics Analysis, 1971-2015

Variable	Mean	Median	Standard Deviation	Skewness	Kurtosis	Jarque-Bera	Prob.	Observations
TL	0.32	0.33	0.05	-1.70	7.20	54.81	0.00	45
ELF	35.22	31.45	12.86	0.72	2.48	4.36	0.11	45
ER	39.32	28.11	31.34	0.79	2.49	5.23	0.07	45
TOT	80.66	87.50	20.74	-0.43	2.46	1.91	0.38	45
HK	115.22	134.10	43.63	-0.42	1.47	5.70	0.06	45
CPI	70.82	43.44	69.40	1.28	3.62	12.92	0.00	45
PGDP	24667.24	24928.48	7080.16	0.28	2.02	2.38	0.30	45
PCYAS	31781.75	9062.25	38959.77	1.06	2.98	8.35	0.02	45
PCYIS	61619.14	26509.82	66898.39	0.49	1.34	6.94	0.03	45
FR	290257.90	44375.00	391861.20	1.03	2.34	8.82	0.01	45
TI	813091.90	809858.50	477586.00	0.35	2.03	2.67	0.26	45
M2	1912635.00	608626.00	2572234.00	1.40	3.66	15.50	0.00	45

Kurtosis test is used to measure whether the data are peaked or flat relative to normal distribution. Results of Kurotisis test show that only TL, M2, and CPI are leptokurtic (long-tailed or higher peak) and all other variables are platykurtic (fat or short-tailed). These both test skewness and kurtosis can be collectively to determine whether random variables are follows a normal distribution. A Jarque-Bera (JB) test for normality suggests that residuals are not normally distributed for TL, M2, and CPI as their value of probability is 0.00. For all other variables included in this study it is concluded that residuals for these variables are normally distributed.

Table 4: Correlation Matrix

	PCYAS	PCYIS	PGDP	TI	TL	TOT	M2	HK	FR	ER	ELF	CPI
PCYAS	1											
PCYIS	0.90	1										
PGDP	0.88	0.89	1									
TI	0.81	0.90	0.96	1								
TL	-0.03	0.08	0.29	0.36	1							
TOT	-0.70	-0.67	-0.61	-0.58	0.07	1						
M2	0.94	0.85	0.90	0.82	0.00	-0.81	1					
HK	0.72	0.80	0.90	0.89	0.39	-0.26	0.65	1				
FR	0.91	0.89	0.90	0.86	0.07	-0.82	0.96	0.67	1			
ER	0.96	0.92	0.96	0.89	0.09	-0.68	0.96	0.82	0.92	1		
ELF	0.93	0.90	0.98	0.92	0.18	-0.70	0.96	0.83	0.94	0.98	1	
CPI	0.95	0.86	0.93	0.84	0.05	-0.74	0.99	0.73	0.94	0.98	0.98	1

To verify the strength of the relationship of variables, the correlation test has been performed and the results are reported in Table 4. All variables are positively correlated with each other except terms of trade which is negatively correlated with other variables while the trade liberalization TL) have no correlation with broad money (M2) and vice versa. The results indicate that trade liberalization have very weak correlation with other variables while per capita GDP in industrial sector, and per capita GDP in agricultural sector, employed labor force, inflation have strong positive correlation with all other variables.

To find out the long and short run relationship between trade liberalization, per capita GDP in industrial sector, and per capita GDP in agricultural sector, employed labor force, inflation, the study used time series econometrics technique, such as analysis of co-integration, error-correction models and Granger causality analysis. The OLS estimation of regressions generates spurious regressions in case the variables are found to be non-stationary. Therefore, it is of great importance for reliable results to check whether the data is stationary or non-stationary to avoid the spurious results (Granger and Newbold, 1974).

4.2 Stationarity Testing

The stationarity test of the variables is determined by performing the Augmented Dickey-Fuller (ADF) test. A procedure was developed by Dickey and Fuller (1979, 1981) to formally test for non-stationarity. The significant part of their test is that testing for non-stationarity is equivalent to unit root. As the error term is unlikely to be white noise, Dickey and Fuller extended their test procedure and suggested an augmented version of the test which includes extra lagged terms of the dependent variable in order to eliminate autocorrelation.

4.3 Unit Root Testing:

General equation for unit root testing, is used by adding lags of dependent variable by applying, whether the series have unit root or not as given in Equation (a).

$$\Delta Y_t = \alpha + \beta x_t + (\lambda - 1)Y_{t\_1} + \sum_{t=1}^{k} \theta \Delta Y_{t-1} + u_t \quad \text{(a)}$$

The results of Augmented Dickey–Fuller (ADF) test are presented in Table 5. If series is integrated order I(0) / stationary, then simple OLS technique is used. If data is proved to be integrated order I(1) non-stationary in all series then co-integration is applied to check whether long run relationship exists or not among variables. The results clearly indicate that the absolute test statistics value of all series is less than absolute critical value as well as probability also greater than 5% significance level. It means that null hypothesis cannot be rejected, rather we accept null hypothesis, so, all the series has unit root. It indicates that all the time series are integrated of order (1) and non-stationary. While at first difference all the time series are stationary. The absolute value of test statistics of all series at first difference is greater than critical value and P value less than 5% significance level, so, the null hypothesis of series has unit root is rejected and alternative hypothesis, series has no unit root is accepted means that the entire variable has no unit root at first difference, in result of all the time series are stationary. Now it is justifiable to proceed further. If the time series are integrated order (0) at difference and co-integrated, there is long run as well as short run relationship may exist between variables.

Table 5: Augmented Dickey-Fuller Test Statistics

	At Level Test critical values 1% = -3.610, 5% =-2.939,10% = -2.608			**At 1st Difference** Test critical values 1% = -3.610, 5% =-2.939,10% = -2.608		
Variables	**t-Statistic**	**Prob.***	**Decision**	**t-Statistic**	**Prob.***	**Decision**
LPCYAS	-0.066	0.946	Does not reject	-6.096	0.000	Reject
LPCYIS	-0.312	0.914	Does not reject	-5.666	0.000	Reject
LCPI	0.060	0.958	Does not reject	-3.074	0.037	Reject
LELF	0.430	0.982	Does not reject	-5.780	0.000	Reject
LER	-1.301	0.620	Does not reject	-4.581	0.001	Reject
LFR	-1.509	0.519	Does not reject	-7.865	0.000	Reject
LHK	-1.873	0.341	Does not reject	-5.293	0.000	Reject
LM2	-0.675	0.841	Does not reject	-5.014	0.000	Reject
LPGDP	-0.770	0.816	Does not reject	-5.724	0.000	Reject
LTI	-3.749	0.007	Does not reject	-3.377	0.018	Reject
LTL	-3.958	0.004	Does not reject	-6.727	0.000	Reject
LTOT	-1.401	0.572	Does not reject	-7.233	0.000	Reject

**MacKinnon (1996) one-sided p-values*

To testify the long run and short run relations, Johansen co-integration and error correction model have been used. We also applied higher-power tests like the Ng and Perron (2001) unit root test to validate the order of integration. The Table 6 demonstrates that all variables are co-integrated as all under-considered variables in study, have first order of integration. The null hypothesis of Ng and Perron unit root test is stated as "Series is non-stationary".

Table 6: Ng and Perron Test Statistics

Variables	MZa	MZt	MSB	MPT	Decision
At Level					
LPCYAS	-7.41582	1.92504	0.25959	12.2890	Does not reject
LPCYIS	-5.52488	-1.58333	0.28658	16.2794	Does not reject
LCPI	-12.5100	-2.49498	0.19944	7.31729	Does not reject
LELF	-3.47280	-1.17853	0.33936	23.8259	Does not reject
LER	-7.60510	-1.90111	0.24998	12.0908	Does not reject
LFR	-10.9783	-2.26909	0.20669	8.66490	Does not reject
LHK	-0.51332	-0.25783	0.50229	56.4859	Does not reject
LM2	-11.5977	-2.12632	0.18334	9.24974	Does not reject
LPGDP	-6.22807	-1.76270	0.28303	14.6303	Does not reject
LTI	-3.26927	-1.12494	0.34409	24.7803	Does not reject
LTL	-6.79127	-1.73282	0.25515	13.5059	Does not reject
LTOT	-4.96646	-1.38113	0.27809	17.3812	Does not reject
At 1st Difference					
LPCYAS	-21.2734	-3.26041	0.15326	4.28950	Reject
LPCYIS	-21.3703	-3.26590	0.15282	4.28175	Reject
LCPI	-15.1276	-2.74441	0.18142	6.05823	Reject
LELF	-21.3786	-3.26795	0.15286	4.27152	Reject
LER	-19.4228	-3.11398	0.16033	4.70585	Reject
LFR	-20.2575	-3.17540	0.15675	4.54188	Reject
LHK	-21.3914	-3.27003	0.15287	4.26229	Reject
LM2	-20.5032	-3.19121	0.15564	4.50872	Reject
LPGDP	-19.0757	-3.08420	0.16168	4.80221	Reject
LTI	-18.1437	-2.95857	0.16306	5.34379	Reject
LTL	-20.9939	-3.23942	0.15430	4.34346	Reject
LTOT	-20.6842	-3.21086	0.15523	4.43620	Reject
Asymptotic critical values*:					
	1%	-23.8000	-3.42000	0.14300	4.03000
	5%	-17.3000	-2.91000	0.16800	5.48000
	10%	-14.2000	-2.62000	0.18500	6.67000

**For Critical value Ng-Perron (2001,Table 1)*

4.4 Selection of lag length criteria for Co-integration and Unrestricted VAR

The second step is to find out the optimal lag length for co-integration and ECM test. Table 7 indicates the lag order selection criteria based on VAR. For selection of lag length Schwarz criterion (SBC) has been favored and found that the optimal lag length is 2 lags. Proper lag length selection is a necessary condition to perform co-integration and ECM analysis (Asari *et.al.*, 2011).

Table 7: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	734.9865	NA	4.04E-30	-33.62728	-33.13578	-33.446
1	1273.184	750.9739	5.56E-38	-51.96207	-45.5726	-49.6058
2	1547.309	229.5000*	7.62e-40*	-58.01439*	-45.72695*	-53.48316*

** indicates lag order selected by the criterion, LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion*

If two time series are co-integrated then long run relationship exists between the variables, furthermore, the possibility of short run relationships also exists (Engel and Granger, 1987). Therefore, to verify whether the long run relationship exists between exchange rate and other variables, Co-integration techniques like Johansen Co-integration and Vector Error Correction Model (VECM) have been applied for long and short run relationships, respectively. If co-integration is found in two time series then long run relationship exist between series and possibility of short run relationship may also present (Ali T M *et.al.*, 2015).

Table 8: Unrestricted Cointegration Rank Test (Trace and Maximum Eigenvalue)

Rank Test (Trace)					Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	**Eigenvalue**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****	**Hypothesized No. of CE(s)**	**Eigenvalue**	**Max-Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None *	0.994	819.934	334.984	0.000	None *	0.994	216.088	76.578	0.000
At most 1 *	0.975	603.846	285.143	0.000	At most 1 *	0.975	154.619	70.535	0.000
At most 2 *	0.923	449.227	239.235	0.000	At most 2 *	0.923	107.521	64.505	0.000
At most 3 *	0.845	341.706	197.371	0.000	At most 3 *	0.845	78.189	58.434	0.000
At most 4 *	0.792	263.517	159.530	0.000	At most 4 *	0.792	65.949	52.363	0.001
At most 5 *	0.700	197.568	125.615	0.000	At most 5 *	0.700	50.524	46.231	0.016
At most 6 *	0.632	147.043	95.754	0.000	At most 6 *	0.632	41.956	40.078	0.030
At most 7 *	0.566	105.087	69.819	0.000	At most 7 *	0.566	35.087	33.877	0.036
At most 8 *	0.506	70.000	47.856	0.000	At most 8 *	0.506	29.601	27.584	0.027
At most 9 *	0.401	40.399	29.797	0.002	At most 9 *	0.401	21.507	21.132	0.044
At most 10 *	0.256	18.892	15.495	0.015	At most 10	0.256	12.412	14.265	0.096
Trace test indicates 11cointegratingeqn(s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values Lags interval (in first differences): 2 to 2					Max-eigenvalue test indicates 9 cointegrating eqn(s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values				

4.5 Johansen Co-integration:

The results of trace statistic and Maximum Eigen value statistics for co-integration are presented in Table 8. A trace statistic of all four models is estimated. Results show that the long run coefficient (β of the matrix) for the rank (r) that tells about the number of co-integrating vectors between variables. The result of trace test indicates 11 co-integrating eqn(s) at the 0.05 level are present. The null hypothesis of no co-integration is rejected at 5% significant level as the P value is less than 5% for rank (r)= 0 as well as the trace statistics value is greater than critical value. In second part of Table 8, results of Maximum Eigenvalue rank are presented which show that there are 9 co-integrating eqn(s) at the 0.05 level. The results indicate that the value of Max-Eigen Statistic is greater than critical value and P value is less than 5%. Therefore, null hypothesis of no cointegration can be rejected, this testify co-

integration in the variables. Results verify the presence of 11 co-integration equations at 5% level in all four models which depicts that long run association is present between dependent and independent variables.

Table 9: Normalized Cointegrating coefficients: 1 Cointegrating Equation(s)

Independent variables	Dependent Variables									
	LPCYAS Eq. 1		LPCYIS Eq. 2		LELF Eq. 3		LCPI Eq. 4		LPGDP Eq. 5	
	Coefficient	t. stat	Coefficient	t. stat	Coefficient	t. stat	Coefficient	t. stat	Coefficient	t. stat
LPCYAS	1.000	-	-1.768	10.514	-0.070	8.090	-0.151	8.282	-	-
LPCYIS	-0.566	4.665	1.000	-	0.177	-18.156	0.378	-18.678	-	-
LELF	1.285	-0.920	-2.272	0.974	1.000	-	2.138	-8.753	-1.471	9.169
LCPI	-2.839	4.840	5.019	-5.155	0.468	-12.635	1.000	-	-0.319	4.128
LER	-0.350	0.866	0.619	-0.876	-0.550	27.768	-1.175	31.547	0.215	-4.658
LFR	-0.085	0.722	0.150	-0.720	0.046	-6.049	0.098	-6.915	-0.039	2.322
LHK	4.304	-7.350	-7.607	7.366	0.196	-5.191	0.419	-4.999	0.017	-0.205
LM2	0.659	-1.346	-1.164	1.445	-0.371	13.446	-0.792	12.952	0.297	-5.027
LTI	-2.532	7.788	4.475	-7.546	0.063	-2.780	0.134	-3.087	-0.336	7.224
LTL	-4.732	-10.180	-8.364	10.339	-0.691	18.179	-1.477	25.070	0.486	-7.525
LTOT	-2.719	7.066	4.807	-7.248	0.272	-12.782	0.581	-10.125	-0.386	7.861
LPGDP	-	-	-	-	-	-	-	-	1.000	-

To determine the sign, level of long run association and elasticities in above equations the co-integrating vectors have been normalized on LPCYAS, LPCYIS, LELF, and LCPI. Table 9 reports the results regarding the coefficients of β matrices in terms of normalized cointegrating coefficients of the Ist equation. The results show that long run relationship exists among the variables. All the variables are statistically significant and all coefficients except TOT have relationship with LPCYAS, LPCYIS, LELF, and LCPI.

Trade liberalization's sign is negative, showing that TL has direct positive relationship with LPCYAS, LPCYIS, LELF, and LCPI, 1 percent increase in trade openness leads to increase 4.732, 8.36, 0.69 and 1.47percent rise in the LPCYAS, LPCYIS, LELF, and LCPI respectively and stands more elastic while LPGDP shows negative relationship with LTL. Furthermore, LELF and LHK have inverse relationship with LPCYAS, LPCYIS. Since long run association has been observed among different variables, we can also explore the possibility of a short run relationship by using an error correction model (ECM) framework.

4.6 Error Correction Model (ECM)

Result of error correction models of five models are presented in Table 10. The results indicate the short run dynamic association and set of short run coefficient in the ECM, which relates changes in LPCYAS, LPCYIS, LELF, LCPI and LPGDP to change in other variables and error term in the lag periods. Therefore, the lagged difference error correction term captures the short run changes in the respective variables. In the ECM specifications, different features of regressions result of each

equation are shown in the Table 8. The coefficient $ECT_{(t-1)}$ is significant and does have a negative sign in five equations. The coefficient of $ECT_{(t-1)}$ indicates the speed of adjustment and in the case of equation DLPCYAS, DLPCYIS, DLELF, DLCPI and DLPGDP is 100%, 94%, 72%, 34%and 42% respectively. In other words, about 100, 94, 72, 34 and 42 percent of disequilibrium is corrected each year in case of external shock in economy.

Trade liberalization has a negative, insignificant impact on DLPCYIS and DLCPI in short run; whereas trade liberalization has a positive, insignificant impact on DLPCYAS and DLCPI. Moreover, the results show that trade liberalization has positive and significant impact on DLPGDP. DLELF and DLCPI have reverse signs with DLPCYIS. Labor force participation has a significant positive impact on DLPCYAS. If the value of R-square is greater than Durbin-Watson value then the model is spurious. The results indicate that the R-square values are less than Durbin-Watson value in all models. It testifies that our regression is not spurious and model is correctly specified.

Table 10: Results of ECM for Short Run Dynamics

Independent variables	Dependent Variables									
	DLPCYAS Eq. 1		DLPCYIS Eq. 2		DLELF Eq. 3		DLCPI Eq. 4		DLPGDP Eq. 5	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
DLPCYAS	-	-	0.211	0.016	-0.008	0.235	-0.003	0.863	-	-
	-		(0.083)		(0.006)		(0.016)		-	-
DLPCYIS	0.903	0.000	-	-	-0.013	0.152	-0.039	0.088	-	-
	(0.223)		-		(0.009)		(0.022)		-	-
DLELF	0.807	0.745	-6.574	0.000	-	-	-0.210	0.481	0.077	0.520
	(2.458)		(1.538)		-		(0.294)		(0.119)	
DLCPI	0.627	0.637	-1.103	0.176	0.020	0.739	-	-	-0.012	0.856
	(1.317)		(0.797)		(0.061)		-		(0.068)	
DLER	0.124	0.897	1.136	0.058	0.026	0.567	0.403	0.000	-0.022	0.664
	(0.952)		(0.577)		(0.044)		(0.095)		(0.049)	
DLFR	-0.055	0.685	0.098	0.251	-0.002	0.720	-0.023	0.150	-0.012	0.106
	(0.134)		(0.084)		(0.006)		(0.016)		(0.007)	
DLHK	0.006	0.996	0.259	0.709	0.098	0.055	-0.093	0.479	0.090	0.149
	(1.136)		(0.687)		(0.049)		(0.130)		(0.061)	
DLM2	-0.121	0.909	0.105	0.873	-0.085	0.084	0.204	0.111	0.066	0.224
	(1.047)		(0.651)		(0.047)		(0.125)		(0.053)	
DLTI	(-0.573)	0.217	0.160	0.579	-0.005	0.824	-0.037	0.498	0.025	0.264
	0.455		(0.285)		(0.021)		(0.054)		(0.022)	
DLTL	(0.149)	0.787	-0.428	0.204	-0.007	0.774	0.058	0.371	0.068	0.020
	0.547		(0.330)		(0.025)		(0.063)		(0.028)	
DLTOT	(-0.378)	0.465	-0.715	0.031	-0.079	0.004	-0.134	0.025	-0.044	0.113
	0.512		(0.316)		(0.025)		(0.057)		(0.027)	
ECT(-1)	-1.005	0.000	-0.940	0.000	-0.727	0.000	-0.343	0.003	-0.425	0.003
	(0.221)		(0.150)		(0.105)		(0.107)		(0.133)	
C	-0.007	0.942	0.096	0.100	0.015	0.001	0.020	0.064	0.004	0.403
	(0.097)		(0.056)		(0.004)		(0.010)		(0.005)	
DLPGDP	-	-	-	-	-	-	-	-	-	-
R^2	0.541		0.691		0.669		0.588		0.486	
Adjusted R^2	0.383		0.585		0.555		0.446		0.330	
SSR	0.528		0.204		0.001		0.007		0.001	
F-statistic	3.425		6.504		5.880		4.147		3.117	
Prob. (F.Stat.)	0.003		0.000		0.000		0.001		0.007	
DW. Stat.	2.051		1.848		1.697		1.132		1.809	

The results of the serial correlation test are shown in Table 11. Null hypothesis as per Breusch-Godfrey Serial Correlation LM Test is not serial correlated while alternative hypothesis is serially correlated. Normally we use observed R-squared value and its corresponding P value for serial correlation. The results clearly indicate that the absolute P value of all model greater than 5% significance level. It means that null hypothesis cannot be rejected, rather we accept null hypothesis, and therefore, the entire model is not serially correlated. All the tests endorse that the models are reliable and unbiased.

Table 11: Breusch-Godfrey Serial Correlation LM Test

	DLPCYAS Eq. 1	DLPCYIS Eq. 2	DLELF Eq. 3	DLCPI Eq. 4	DLPGDP Eq. 5
F-statistic	0.488	0.763	0.440	18.211	0.827
Obs*R-squared	1.387	2.131	1.255	24.127	2.228
Prob. F(1,30)	0.619	0.475	0.648	0.000	0.447
Prob. Chi-Square(1)	0.500	0.345	0.534	0.000	0.328

Table 12: Pair wise Granger Causality Tests

Null Hypothesis:	Obs.	F-Statistic	Prob.
LTL does not Granger Cause LPCYAS	44	0.471	0.496
LPCYAS does not Granger Cause LTL		0.239	0.628
LTL does not Granger Cause LPCYIS	44	0.524	0.473
LPCYIS does not Granger Cause LTL		0.004	0.948
LTL does not Granger Cause LELF	44	0.028	0.868
LELF does not Granger Cause LTL		0.160	0.691
LTL does not Granger Cause LCPI	44	0.070	0.793
LCPI does not Granger Cause LTL		0.176	0.677
LTL does not Granger Cause LER	44	2.482	0.123
LER does not Granger Cause LTL		0.182	0.672
LTL does not Granger Cause LFR	44	3.069	0.087
LFR does not Granger Cause LTL		0.053	0.818
LTL does not Granger Cause LHK	44	3.178	0.082
LHK does not Granger Cause LTL		0.013	0.911
LTL does not Granger Cause LM2	44	1.855	0.181
LM2 does not Granger Cause LTL		0.067	0.797
LTL does not Granger Cause LTI	44	1.474	0.232
LTI does not Granger Cause LTL		0.054	0.818
LTOT does not Granger Cause LTL	44	0.549	0.463
LTL does not Granger Cause LTOT		0.042	0.839
LPGDP does not Granger Cause LTL	44	0.094	0.760
LTL does not Granger Cause LPGDP		0.805	0.375

4.7 Granger Causality:

Granger argued that the presence of co-integrating vector indicates that Granger causality exists in at least one direction. A variable Granger causes the other variables if it helps forecast its future values. Our focus is to find the Granger casualty between trade openness and other variables, therefore, the results of Granger causality test for trade openness are reported in Table 12. The results indicate that P value is greater than 5% significance level, thus the null hypothesis is rejected, i.e. the bidirectional causality between trade linearization and all other variables are present.

5. RESULTS AND DISCUSSION

5.1 Trade Liberalization and Agriculture Sector

Several economists say that the restrictiveness, the lack of trade openness, may have an effect of slowing economic development and growth or it may have an effect of increasing economic development and growth (Enotes, 2016). Our results verify that trade liberalization has positive effect on per capita income of agricultural sector in long run as well as short run but it is not significant. This result endorses the endowment theory that a labor abundant country that specialized in producing labor intensive products for export stands to gain from trade liberalizations. In Pakistan, most of labor force work in rural area, 42.3% labor force worked in agricultural sector and 15.3 % in manufacturing sector [Government of Pakistan (2015-16)]. In Eq.1 per capita income in agricultural sector is important indicator in the reduction of poverty. Results of co-integration tells that trade liberalization has positive affect as 1% increase in trade liberalization lead to an increase of 4.73% in per capita income of agriculture sector in the long run. Therefore, increase per capita income that is most important factor in poverty reduction lead to economic development.

5.2 Trade Liberalization and Industrial Sector

It has been testified empirically in the above section that trade liberalization has also positive association with per capita income of industrial sector as well as positive relationship with per capita income of agricultural sector but it is not significant. The results of normalized co-integration equation indicate that 1% increase in the trade liberalizations will bring about the 8.36% increase in the per capita income of industrial sector in the long run while trade openness has inverse relationship with per capita income of industrial sector in short run. When home industry adopts new technology and shift their system from manual to automatic machinery, then many hand labor/ workers lose their job and industry adopt the policy of downsizing. Consequently, employment is reduced in short run. Thus, per capita income of industrial sector reduces resulting in an increase of poverty and unemployment in short run. But in the long run situation is different. When trade liberalization promotes imports substitution industrial strategy, it affects the domestic market production and consequently the productivity of industrial sector enhance through technological change in the long run. Trade openness has bidirectional causal relationship with per capita income of the industrial sector.

5.3 Effect of Trade Liberalization on Employment

Results of Eq.3 show that employment has inverse relationship with trade liberalization in short run but not significant. While trade liberalization is statistically significant at 1% level of significance in long run and 1% increase in trade linearization declines 0.7% in employment. While in the long run trade openness has significantly positive association with employment.

5.4 Trade Liberalization and Inflation (CPI)

On the basis of results presented in Table 9 (Eq.4), we may say that inflation is significantly directly associated with trade liberalization in long run. While results

of ECM equation indicate that trade liberalization has an inverse relationship with inflation in short run (1% increase in trade liberalization 5.8% decrease inflation). Trade liberalization would lead to improved price incentive for stimulating domestic production of manufactures and food production as replacement for huge imports, emergent incentive tended to hurt these sectors. Consequently, inflation rises up to high. There are many other factors that are hammering inflation including human capital, employment level and per capita income of industrial sector. It has been found that human capital and per capita income of industrial sector are significantly negatively associated with inflation in short run. It means 1% increase in human capital and per capita income of industrial sector reduces inflation by 9.3% and 3.9% respectively in short run. The facts show that the suppliers and importer of subsidized farm inputs (i.e. fertilizers, tractors) and industrial inputs (i.e refined petroleum products) take more benefits than farmers and small to medium industries. More importantly, that the policy impact seems to disappear as the subsidy was announce to the adoption of labor displacing the capital-intensive methods of production in a country that has labor abundance. Furthermore, the mechanisms of price incentive are not according to the need of farmer or R&D which is considered the key to shifting the production frontiers in nation factor endowment (Balogun and Dauda, 2012).

5.5 Effect of Trade Liberalization on poverty and Economic Development

Empirical results are presented in Table 9 (Eq.5) show that LPGDP has inverse relationship with trade liberalization in long run. Our results are similar to many studies that are discussed in literature review. Increase in trade liberalization tends to decrease per capita GDP. As 1% increase in trade liberalization decreases 48.6% in long run and 6.8% in short run in per capita GDP. The exchange rate's magnitude impact is relatively high on real GDP growth in the presence of more political shocks as compared to fiscal deficit and investment in Pakistan's economy (Hafeez and Haseeb, 2016; Hafeez *et.al.*, 2017). This is in conflict with prior expectations. It may be due to the introduction of certain policies concerning investment and import substitution, which could not lead to higher economic growth and increased level of per capita GDP on liberalization of trade. Another possible reason could be the increasing use of such technologies which encourage capital intensive rather than labor-intensive methods of production. Since a large proportion of the national labor force is semi-skilled or unskilled, its productivity under the use of high-tech capital method of production did not increase significantly. As to the effect of employment on per capita GDP, it has affected per capita GDP positively. Specifically, a one-percent increase in employment has been found to be associated with a 1.47% percent increase in per capita GDP in long run.

6. CONCLUSION AND POLICY IMPLICATION

The study reveals that trade openness has a positive impact on per capita income of agriculture sector and per capita income of industrial sector in long run while it affects per capita GDP inversely in long run as well as in short run. Resultantly, overall reduction in poverty appears. This result endorses the endowment theory that a labor abundant country that specialized in producing labor intensive products for

export stands to gain from trade liberalizations. In Pakistan, most of labor force work in rural area, 45% labor force worked in agricultural sector. Therefore, increase per capita income that is most important factor in poverty reduction lead to economic development. The indicator of poverty has presented in Table 1 shows 60.38% reduction in poverty during the period from 1987 to 2014-15. The study also reveals that that per capita income in industrial sector, employment, inflation and per capita GDP is inversely affected by trade liberalization. It is reality that when trade openness promotes the import that affects the domestic market that leads to reduction in the production of industrial sector. Consequently, home industry will bear loss, it is evident that they will pay low wages or act upon the policy of downsizing (fire the employee). Thus, per capita income in industrial sector is reduced, as a result poverty and unemployment increase. It is obvious that adverse effect of trade liberalization on per capita earning of manufacturing sector lead to deteriorate employment level.

The findings of this study suggest that Pakistan may adopt restrictive trade liberalization policy for imports of goods to save the domestic market. In contrast, the government should provide the incentive on imports of technology to enhance the home industry and adopt soft trade liberalization policy which base on the removal or reduction of restrictions or barriers on the free exchange of technology between nations. This includes the removal or reduction of both tariff (duties and surcharges) and non-tariff obstacles (like licensing rules, quotas and other requirements) for import of agricultural and industrial machinery, equipment, technology. So that home industry will flourish, in result wages and employment level increase. This would reduce the poverty and raise the per capita GDP and lead to enhance the economic development of Pakistan.

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